

Excerpt from
Language-Based Learning Disabilities by Patricia W. Newhall
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Linking Differences in Brain Function to Interventions

To achieve full language proficiency, an individual must be fluent in each component and area of language — receptive language, oral and written expressive language, and decoding/encoding. Formal evaluative testing is essential to guide appropriate educational interventions for children with a language-based learning disability. Assessments administered and interpreted by neuropsychologists and speech-language pathologists are designed to indicate which areas of language function are affected. A thorough evaluation explores an individual's patterns of strengths and weaknesses, determines the root cause of difficulty, and makes recommendations for appropriate interventions.

Understanding the root cause of difficulty can be confusing for parents and classroom teachers because the terminology for learning difficulties is not consistent across disciplines. The box below identifies various terms professionals use.

Terminology for Reading Difficulty

Dyslexia refers specifically to decoding difficulty, but includes difficulty caused by two distinct disorders in brain processing: phonological and orthographic processing disorders (see definition below). It is estimated that 85% of children who experience reading difficulty have a phonological processing disorder.

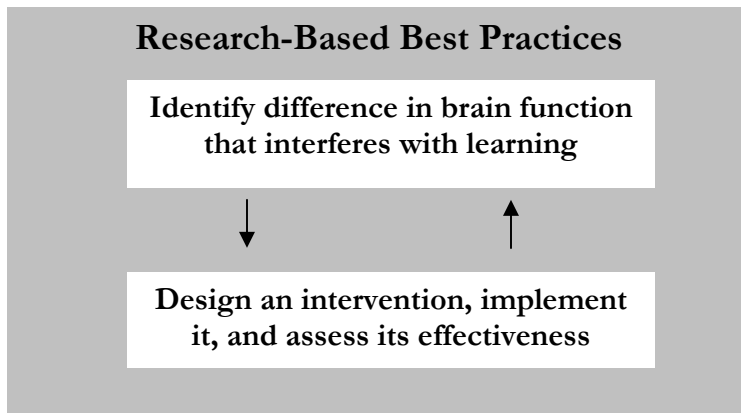
Specific learning disability encompasses difficulties with speaking, reading, spelling, writing, and mathematics. It includes disabilities that are not language-based.

Reading disorder encompasses difficulties with decoding, fluency and reading comprehension.

Phonological processing disorder and orthographic processing disorder refer to the particular brain processes at work in people who experience difficulty when they read. An individual who has a phonological processing disorder will have difficulty perceiving and manipulating the phonemes that would enable them to “hear” the sounds of the words they read.* Orthographic processing involves recognizing and remembering the spatial orientation and sequence of language symbols. When individuals with orthographic processing disorders attempt to read, their brains have trouble perceiving and/or processing the direction and sequence of written language.

*Shaywitz, S. (2003) *Overcoming dyslexia: A new and complete science-based program for reading problems at any level.* New York: Knopf.

Research-Based Best Practices



With appropriate and intensive individualized intervention, children with LBLD can acquire the skills to succeed with language. Research-based best practices are interventions demonstrated to be effective in remediating a particular difficulty. For example, both dyslexia and expressive language disorder are

language-based learning disabilities; however, appropriate interventions for them are distinctly different.

In *Overcoming Dyslexia*, Sally Shaywitz describes one of the most dramatic examples of how important it is to link brain research with educational practice. Focusing on the most common form of dyslexia — phonological processing disorder — Shaywitz describes how researchers at Yale University designed and tested educational interventions based on their understanding of how the brain functions. New technology (called functional neuroimaging) enabled the team to watch individuals' brains doing the work of reading. Their findings? Individuals who received the intervention showed a clear change in the way they used their brains. Their brains approached the task more like the brains of proficient readers.

Many research findings are less dramatic, but a review of literature reveals that we know a great deal about how the brain functions and what we should be doing when it is not functioning efficiently.

Educator Responsibilities

The process of identifying learning needs and designing and implementing instruction that meets those needs sounds logical. Unfortunately, it doesn't always happen. The reasons — from under-identification of disability to lack of resources — are numerous. Most important to understand is that the research community has identified specific educational strategies and programs that clearly help individuals with language-based learning disabilities become more efficient, effective, and successful learners. It is the responsibility of the educational community to use this knowledge to help struggling learners succeed.

Appropriate Interventions

- Brain-based
- Research-tested
- Carried out by professionals trained to implement the intervention, assess the child's progress, and recommend further intervention